

AMENDMENT UNDER 37 C.F.R. § 1.111
US APPLICATION NO. 10/712,998
ATTORNEY DOCKET NO. Q78497

REMARKS

Upon entry of the Amendment, Claims 1 and 4-10 will be pending in the application.

Claim 11 was previously withdrawn from consideration by the Examiner, and is now canceled.

Claim 1 is amended to recite that “A flame retardant ethylene family resin composite comprising a flame retardant resin composite having a specific gravity of 1.14 or less, as a product of a process comprising the steps of:

preparing a flame retardant agent comprising magnesium hydroxide and stearic acid adhering thereto;

providing a core element comprising the flame retardant agent;

surface-treating the core element with a polyorganosiloxane, thereby preparing a particle element having the core element coated with a polyorganosilane;

preparing a flame retardant particle comprising the particle element;

mixing an ethylene vinyl acetate copolymer (EVA) and an ethylene ethyl acrylate copolymer (EEA), thereby preparing an ethylene family copolymer; and

preparing the flame retardant resin composite comprising a dispersion medium comprising the ethylene family copolymer, and a system of flame retardant particles evenly dispersed in the dispersion medium.

Claims 2-3 are canceled without prejudice.

Dependent Claims 4-10 are amended as provided in the Amendments to the Claims.

No new matter is added.

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Entry of the Amendment is respectfully requested along with reconsideration and review of the claims on the merits.

Formal Matters

Applicants appreciate that the Examiner has acknowledged the claim for foreign priority and the receipt of the priority document, and appreciate that the Examiner has accepted the drawings filed on November 17, 2003. Additionally, Applicants appreciate that the Examiner has reviewed and considered the references cited in the Information Disclosure Statement filed February 9, 2004.

Claim Rejections Under 35 U.S.C. § 112

A. Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph as assertedly being indefinite.

The Examiner points to the recitation “each respectively having a flame retardant agent including magnesium hydroxide and polyorganosilane” in Claim 1; the recitation “wherein each flame retardant particle comprises polyorganosiloxane-treated magnesium hydroxide” in Claims 3-5 [*sic* - Claims 3-4]; the recitation “parts in weight” in Claims 5-6; and the recitation “process assisting agent” in Claim 10 as assertedly being indefinite.

Applicants respond as follows.

Without conceding the merits of the rejection, Claims 1, 4, 5, 6 and 10 have been amended for clarification as viewed in the Amendments to the Claims and as discussed below.

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In Claim 1, the recitation in question, “each respectively having a flame retardant agent including magnesium hydroxide and polyorganosilane”, has been canceled to obviate the rejection.

The rejection of Claim 3 is moot as Claim 3 is canceled.

Claim 4 is amended to recite “wherein the flame retardant particle comprises an assisting flame retardant agent provided about the flame retardant agent, the core element, or the particle element.” The flame retardant particle has clear antecedent support in Claim 1.

Claims 5-6 are amended to recite “parts by weight of” instead of “parts in weight of”.

Claim 10 is amended to recite “stearic acid” and to cancel “a process assisting agent as an additive”.

Thus, these amended claims more clearly comply with the requirements of 35 U.S.C. § 112, second paragraph.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

B. Claims 1-5, 9 and 10 are rejected under 35 U.S.C. § 112, first paragraph, as assertedly being non-enabled for an ethylene family copolymer falling within the broad scope of the claimed invention. Although a mixture of 20-40 parts by weight of EVA copolymer and 80-60 parts by weight of an EEA copolymer is enabled by the specification, the Examiner states that the specification does not enable a skilled artisan to make and/or use the invention commensurate in scope with these claims.

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Applicants respond as follows.

Claims 2-3 are canceled making the rejection of these claims moot.

Without conceding the merits of the rejection, Claim 1, from which Claims 4-5 and 9-10 depend, has been amended to now more clearly recite the preparation of an ethylene family copolymer from mixing an EVA and an EEA, based on support, for example, at page 12, second full paragraph (see also Tables 4-5).

Thus, Applicants submit that Claims 1, 4-5 and 9-10 are more clearly enabled for an ethylene family copolymer prepared by mixing an EVA and and EEA, as provided in the specification.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph.

Claim Rejections Under 35 U.S.C. § 102 or §103

Claims 1-10 are rejected under 35 U.S.C. § 102(b or e) as assertedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as assertedly obvious over Hasegawa et al (US 4,671,896), Harashige et al (US 5,317,051), Hayashi et al (US 5,889,087), Mori et al (US 6,107,413), Imahashi (US 6,043,306), Hatanaka et al (US 6,699,925) and Hasegawa et al (US 6,755,995), for the reasons given in the Office Action.

The Examiner gives a Brief Summary of each of the applied references starting at paragraph 16, on page 5 to page 8 of the Office Action. On page 8, the Examiner states that each of the references anticipate the present invention with the understanding that the flame-retardant

compositions of each reference assertedly overlaps in scope with the claimed flame retardant ethylene family resin composites. On page 9, the Examiner states that even if it turns out that the claims are not anticipated, it would assertedly have been obvious to the skilled artisan to extrapolate from each of the disclosures of the references, the precisely defined flame retardant ethylene family resin, as claimed, as having been within the purview of the general disclosures of the references and with a reasonable expectation of success.

The Examiner asserts that each of these references anticipate Applicants' claimed invention under 35 U.S.C. § 102(b or e), or in the alternative that the combination of these references render the claimed invention obvious.

Applicants respond as follows.

Claims 2-3 are canceled making the rejection of these claims moot.

Claim 1 is amended as previously described, e.g, to incorporate a flame retardant resin composite having a specific gravity range of 1.14 or less.

Applicants submit that each of the applied references fails to teach each and every element of Applicants' claimed invention under 35 U.S.C. § 102(b or e), and additionally, that the combination of these references still fails to render the claimed invention obvious.

According to an aspect of the present invention, a flame retardant ethylene family resin composite (see Fig. 3 and Fig. 7) comprises a flame retardant resin composite (CR1; CR2) of a specific gravity under 1.14, as a product of a process which comprises the steps of: preparing a flame retardant agent (40; 40 or its derivative, see page 6 lines 19-26), which comprises magnesium hydroxide (processed particle 40a), and stearic acid (process assisting agent 40b)

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adhering thereto; providing a core element (40; 40 or 40+62a), which comprises the flame retardant agent; surface-treating the core element by a polyorganosiloxane, thereby preparing a particle element (40+41; 40+62b or 40+62), which has the core element coated with a polyorganosilane (41; 62b); preparing a flame retardant particle (R1; R2), which comprises the particle element; mixing an ethylene vinyl acetate copolymer (EVA) and an ethylene ethyl acrylate copolymer (EEA), thereby preparing an ethylene family copolymer (31; 51); and preparing the flame retardant resin composite (CR1; CR2), which comprises a dispersion medium (31 or 31+33; 51 or 51+53) which comprises the ethylene family copolymer, and a system (32; 52) of flame retardant particles (R1; R2) which are evenly dispersed in the dispersion medium.

In comparison, each of the references cited against the present application are silent not only to the claimed specific gravity range of 1.14 or less, but also to the very concept of providing a flame retardant resin composite (CR1; CR2) having a system (32; 52) of polyorganosiloxane-treated magnesium hydroxide particles (R1; R2) intentionally and evenly dispersed in a dispersion medium (31; 51) comprising the base polymer (EVA+EEA) (see Figs. 3 and 7 and corresponding descriptions in the specification).

The claimed specific gravity range allows for an automatic waste material separation of the flame retardant resin composite from conventional general-purpose covering materials (such as electric wire insulator) due to their specific gravity differences. Applicants submit that the cited references also fail to disclose or teach this benefit of the present invention.

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The concept of dispersion involves a three-dimensionally connected dispersion region (31, 51), i.e., the region of base polymer free of silicone, ensuring an improved mechanical property to prevent conventional seam cracks in extrusion, at a low cost. Furthermore, in the references, silicone gum-treated flame retardant agent is simply knead with base polymer(s), without explicit provision of a silicone-free dispersion region.

The flame retardant resin composite (CR1, CR2) is identifiable as a distinctive material by a range of specific gravity that represents the dispersion structure.

Accordingly, for at least the reasons provided above, Applicants respectfully request reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b), 102(e) or 103(a).

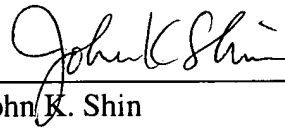
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



John K. Shin
Registration No. 48,409

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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